

Digital Connection

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PSK31 Hints & Tips

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The middle of the cold, cold winter is upon us

This month we'll be taking a closer look at DigiPan software and some of the time-saving and handy things you can do with it. If you're a regular user of DigiPan, you may know about

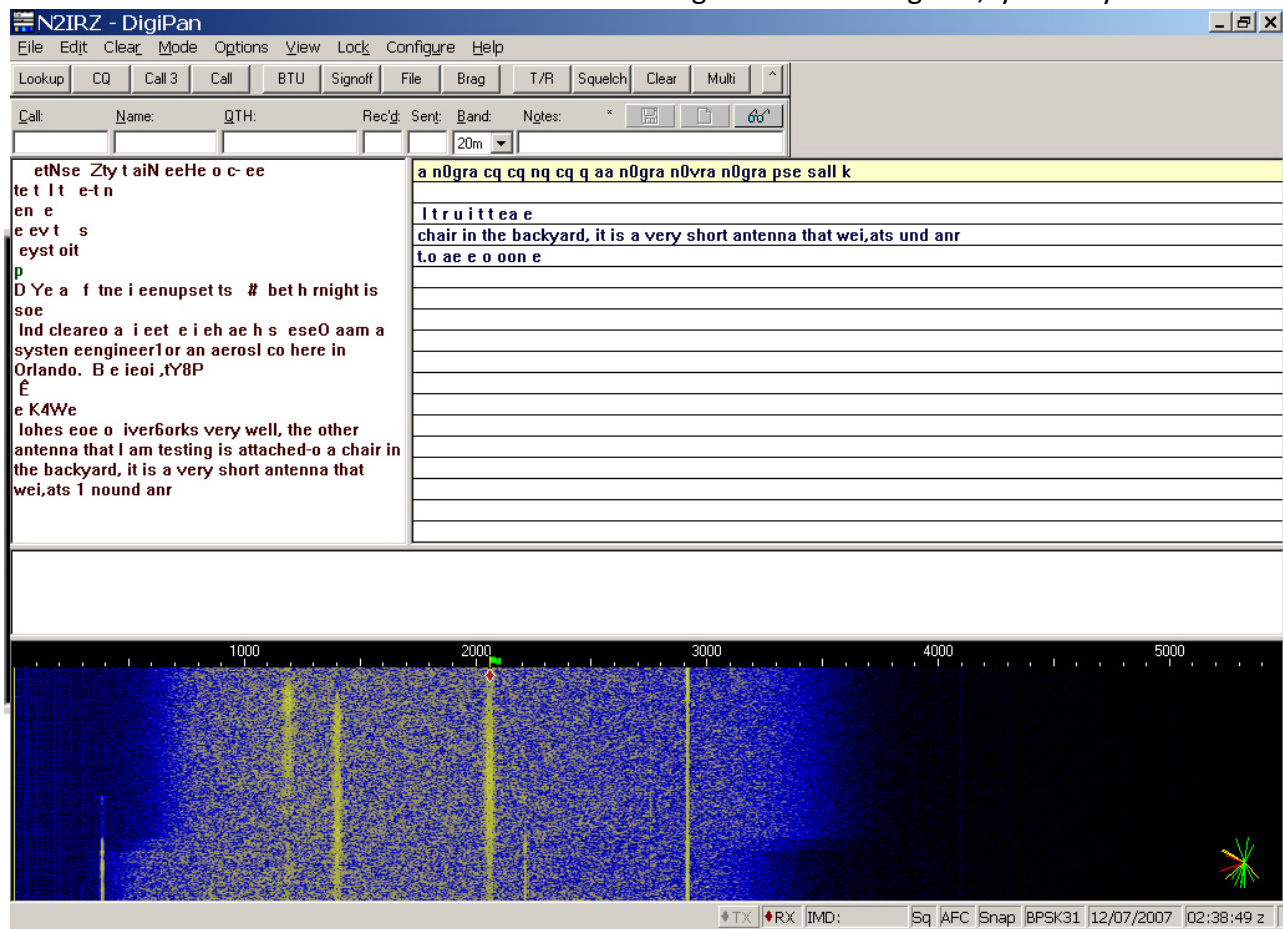


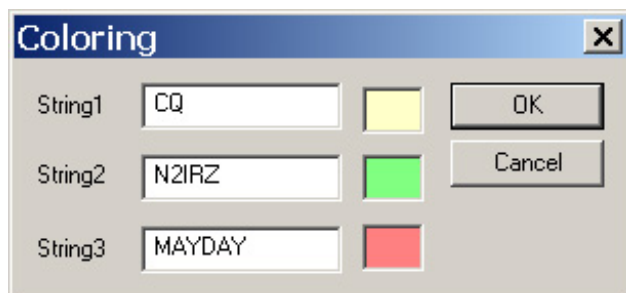
Figure 2: The DigiPan main screen, showing the Single-channel window at the upper left, the Multi-channel window at the upper left (with the CQ message alert active), the waterfall display showing multiple weak signals at the bottom, and the (empty) transmit buffer window in the middle.

here in the north, and as long as we don't have any antenna work to do, snuggling next to a warm radio is probably the best way to spend your time, even though radios used to be a lot warmer. Put a nice computer next to it, and you have an unbeatable pair, almost as good as a pair of 6146 transmitting tubes.

some of this, but our friends who are newer to the mode may still be puzzling about PK31 and how to "do this". Instead of a walk-through of how to set it up – I've written about that before, most recently in the June 2007 column – instead I want to have a look at some of the less obvious tips for working this mode.

The first thing is to find a PSK31 signal. It is a quite popular mode, so this shouldn't be too difficult, but it helps to know what you're looking for, where and how to look. My personal favorite is 40 meters: There's a watering hole around 7070 kHz where there always seems to be plenty of activity. In general, look near the upper half of the CW portion of the band.

If you're trying to find a PSK31 signal, you need to use your eyes as well as your ears. As you tune across the band at about 2 kHz per second, you listen for tones rising or falling in frequency (depending on which direction you are tuning) and, as those tones reach a moderate frequency (maybe 1 kHz, wherever you stop after first hearing it), you pause in tuning for a split second, to look and identify the signal on the waterfall display. You can see and hear Morse code pretty easily, and birdies in the receiver (in my shack, caused by the computer) show up as fairly pure tones. PSK31 has a warbling quality, which I compare to ultra-fast Morse code. On the screen, you see a pair of lines, separated by just a fraction of an inch



The text string alert configuration window. I have mine set to identify CQ signals, my own callsign in case someone is calling me, and mayday calls. Both the text string to react to and the color used for highlighting can be configured.

(corresponding to 31 Hz) that are either very clean or a bit wobbly. Other modes are wider, and have a distinct pattern to them. Once you've decided what kind of signal it is, you can either move on (not PSK31) or tune it in carefully and see who it is. You can also turn off the speaker at this point, since hearing the signal doesn't add any benefit after you've found it.

Once you find a signal, tune it in by left-clicking on it with the mouse. The little diamond at the top of the waterfall window will slide over to the audio frequency where the mouse is pointing, and DigiPan will start to decode it. Alternatively, you can press the right

or left arrow keys, and DigiPan will tune over to the next signal it finds if it is strong enough.

If you find yourself in a part of the band with multiple PSK31 signals, you can toggle into and out of multi-channel decoding mode by pressing F12. In this mode, the main signal you're decoding (and the frequency on which you'll transmit) is indicated by the diamond, and the text appears in the single-channel text box (at the upper left), while the text decoded from each of the signals on the display appears in the multi-channel box, one line per signal, at the upper right. To change to another signal, you can also click on the line in the multi-channel box – this copies the text over to the single-channel window and moves the diamond marker.

One neat feature is the ability to double-click a callsign in the single-channel window (this does not work in the multi-channel window). This captures the callsign so it can be used with the macros and in the log.

Before we get into the macros, let's look at some of the lesser-known features, for example the alert system. While you're monitoring, DigiPan will change the color (which you select) of a line in the multi-channel window if it detects a certain text string (which you also select), such as a CQ call. You can set this in the Configure / Colors / Multichannel menu.

Another feature is the ability to bookmark specific signals in the multi-channel display. From the View menu, select Bookmarks so it is checked. Then, if a signal is interesting, right-click it on the waterfall display to add a marker that corresponds to the display line. This can get a bit messy at times, so use it carefully, and don't be afraid to switch it off. Bookmarks disappear automatically after a few seconds of inactivity, also configurable using the Configure / Multichannel inactivity timeout menu.

You can also set markers to appear at up to five specific frequencies on the waterfall display, using the Configure/Markers menu. This places thin red lines at the selected frequencies on the waterfall display.

DigiPan also has a built-in logging feature. Although not quite contest-quality, it's more than adequate for keeping track of causal QSOs. Double-clicking what looks like a callsign drops it into the callsign field, and double-clicking what looks like a name drops that text into the name field. As you use the macros, the text from these fields can be included, which saves a lot of time. Saving the entry puts it into the log,

and you can also search the log for a callsign or enter notes about the entry.

Macros are probably one of the most useful features in DigiPan. If you're like me, you can type about 15 words per minute, using two or three fingers. If it weren't for macros, I'd be transmitting PSK31 so slowly, it would be almost painful to read. Think about it – PSK31 sends at about 3 characters per second, which translates to roughly 30 words per minute, about twice as fast as I can type. Now, if you can type that fast, you're all set, but for the rest of us hunt-n-peck folks those macros are a lifesaver.

There are 24 macros that can be set up in advance, and any time you press the corresponding macro key, that text is dropped into the transmit buffer. There are buttons in DigiPan that you can click on, and these correspond to the F keys at the top of your keyboard. Twelve of the macros are the straight F keys, and the other 12 are accessed by also holding the <CTL> key.

The most powerful part of the macro feature are the variables that can be used to customize what is being sent. For example, you can drop in your own callsign, the other station's callsign, the other fellow's name, a dozen more variables and a few dozen commands. Together, these make for a powerful control system, relieving you of the burden of most of the mundane typing.

For example, let's say I want to create a macro to call CQ. I go to the Configure / Fn macros menu and select F1 – this means my CQ macro will fire every time I press the F1 key (even if I'm not ready, so I have to be careful my fat fingers don't accidentally mash the keys...). In the macro edit box, I first type in the label I want to appear for this macro – CQ – and then I enter the macro itself. I enter the command to switch into Transmit mode, then the text I want to send, and finally the command to switch off the transmitter and enter receive mode after clearing text from the receive window. My macro looks like this:

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<TX>CQ CQ CQ DE <MYCALL> <MYCALL>  
<MYCALL> pse K <RXANDCLEAR>
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The text for <MYCALL> is configured in the Configure / Personal Data menu (along with my name and QTH).

There are several common and useful macros you can define. To buy you time, build a brag sheet, listing the basics of your station. To simplify the end of a transmission, a "BTU" (Back To You) macro can send your callsign, the other station's callsign (taken from the log entry

window), signs the QSO back to the other station and goes back to Receive mode – once you've finished typing your regular message, just mash the right Function key and sit back while the software handles the transaction. I also have a New Call macro, which is used to respond back to a station calling CQ (sending my callsign three times, the other station's twice), a Call macro which is almost the same as New Call, but sends each callsign only once (to start off each time I send some text, but doesn't start Transmit mode), a Signoff macro which I use to end a QSO (I always thank the other fellow by name for the QSO, send my 73 and callsign, then end the QSO with SK), plus some shortcut keys such as one that toggles Transmit and Receive, and one that clears all the text from the screen.

Once you invoke a macro, that text (and any included command) is dropped into the transmit buffer, which is a type-ahead buffer. This means that text (and commands) in the buffer are sent (or executed) as fast as the transmit speed allows (about 3 characters per second), but you can certainly type whatever you want into the buffer as fast as you like. If you're quick, and there's enough text in the buffer, you can even click and edit inside the buffer until it actually transmits those characters.

One of my techniques is to wait for the other fellow to start transmitting. I hit the Call macro, which pops his and my callsign into the TX buffer, then I read what he is typing and type out my own response – while still receiving his message. Once the conversation is signed over to me, I toggle into Transmit mode, and the text already in the buffer starts to go out. By that time, I'm almost finished typing in my response to his last few words – when I'm done, I hit the BTU macro to sign the QSO back over, then sit back and relax.

Even though I can only type about half as fast as PSK31 can send, this technique ensures there's almost always something in the TX buffer that's ready to go out. That way, the other fellow doesn't have to sit and wait as my message comes through, one character at a time. I get to have an actual ragchew (instead of just sending my brag sheet) and can make the other fellow believe that I can actually type. Actually learning something about the other fellow, or the town, or county where they live is the most interesting part of Amateur Radio for me. Sure, the details of your station are also interesting, but not as much as the history of where you live, or what you do for a living, or... Well, you get the idea.

One last thought: If you want to get a copy of DigiPan, a Google search will reveal the 'official' download page, several mirrors of that site, and several thousand sites for help and other information. The software, along with a sound card interface (anything from the RigBlaster Pro from West Mountain radio to the Rascal from Buxcomm will do) and a radio is all you need to use this (and many other) exciting digital mode.

In my December column, I had promised that we'd be looking at D-Star high-speed digital data, as well as an encryption application called CryptoUP, written by Paul-Adrian Braissant HB9CUF, but due to scheduling difficulties, that did not work out in time for deadline. Fast digital data has always been a passion of mine, and when I had the opportunity to test-drive an ICOM ID-1 D-Star compliant radio, I dove at the chance. Although I promised we'd discuss what I found this month, time schedules and deadlines didn't work out, so that discussion will have to wait for next time.

73,

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